COMMONWEALTH of VIRGINIA

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STATEMENT OF LEGAL AND FACTUAL BASIS

Columbia Gas Transmission, LLC
Goochland, Virginia
Permit No. (PRO-51002)

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Columbia Gas Transmission, LLC has applied for a renewal Title V Operating Permit for its Goochland facility. The Department has reviewed the application and has prepared a draft renewal Title V Operating Permit.

Engineer/Permit Contact: _____ Date:
Cheryl Mayo
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Air Permit Manager: _____ Date:
James E. Kyle, P.E.

Deputy Regional Director: _____ Date:
Kyle Ivar Winter, P.E.

FACILITY INFORMATION

Permittee
Columbia Gas Transmission, LLC
1700 MacCorkle Avenue, S.E.
Charleston, WV 25314

Facility
Goochland Compressor Station
1436 Hermitage Road
Manakin-Sabot, VA

County-Plant Identification Number: 51-075-0026

SOURCE DESCRIPTION

NAICS Code: 486210 – Pipeline Transportation of Natural Gas
SIC Code: 4922 – Natural Gas Transmission

The facility is a natural gas pipeline compressor station. Natural gas is received via gas pipelines from an upstream compressor station, compressed using five (5) Solar Saturn T-1300 turbine engines rated at 1,313 hp each, and pumped into outlet pipelines for transmission to a downstream station. Other auxiliary equipment includes a natural gas-fired boiler rated at 0.84 MMBtu/hr, an 82 hp emergency generator fueled by natural gas, and storage tanks.

Two of the turbines were originally installed in 1966, two others in 1970, and a fifth was installed in 1990. Also in 1990, the four older turbines were significantly upgraded, to the extent that all five are subject to the requirements of 40 CFR 60, Subpart GG [69 FR 41363, July 8, 2004, as amended at 71 FR 9458, Feb. 24, 2006].

The facility is located in an attainment area for all pollutants. It is a Title V major source of Carbon Monoxide (CO), but is considered a PSD minor source for CO as well as being an area source for Hazardous Air Pollutants (HAPs). Fugitive VOC emissions due to equipment leaks and blowdowns are estimated to be approximately 4.3 tons/year.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

CHANGES TO THE PERMIT

The facility was originally permitted on August 31, 1990, when the facility upgraded four compressor turbines and added a fifth. All of the turbines were subject to NSPS Subpart GG.

The New Source Review permit was amended on October 13, 1998 so that the fuel sulfur monitoring requirements in the NSR permit would match those of the initial Title V permit, issued on September 14, 1998.

The New Source Review permit was again amended on May 29, 2008 to incorporate changes in the NSPS Subpart GG fuel sulfur monitoring requirements that had occurred when the standards were amended on October 17, 2000.

Since the renewal of this Federal Operating Permit on August 12, 2008, the minor NSR permit was administratively amended on October 28, 2015. The amendment corrected the visible emissions limit for the turbines, which was inadvertently changed from 5% to 20% in the May 29, 2008 NSR permit. Additionally, requirements (similar to those contained in the August 12, 2008 Title V permit) were added for work practices (maintenance and operator training) which had not been specifically required by the minor NSR, even though recordkeeping for such practices was required by both the NSR and Title V permit. Recordkeeping requirements were also added to the minor NSR dated October 28, 2015 for the annual throughput of natural gas to the turbines (calculated monthly as the sum of the current month plus the previous 11 months) and to eliminate the requirement for fuel sulfur monitoring apart from keeping records of valid purchase contracts, tariff sheets, transportation contracts or representative sampling as allowed by NSPS Subpart GG (40 CFR 60.334(h)(3).

The Title V permit incorporates the requirements of 40 CFR 63, Subpart ZZZZ, as amended on January 30, 2013. The emergency generator located on site is subject to the "Requirements for Existing Stationary RICE Located at Area Sources of HAP emissions" as set forth in Table 2d of Subpart ZZZZ.

The renewal application for the current Title V operating permit, originally issued on September 8, 1998, and renewed on August 29, 2003 and August 12, 2008, was received on July 18, 2012 and deemed administratively complete on July 26, 2012. A public notice was published in Style Weekly on March 2, 2016, with a public comment period ending on April 4, 2016. No comments were received from the public.

EPA Region III reviewed the permit concurrently and submitted comments on the permit on March 28, 2016. The comments and DEQ responses are attached. Aside from a typographical error, which was corrected, the only comment was in regard to periodic monitoring of NO_x emissions. EPA cited a Region 10 memo dated January 27, 2005, which stated that for turbines subject to Subpart GG, periodic monitoring requirements must be added to the Title V permit if no control devices are used to meet the NO_x limit. In response, Conditions 11 – 13 were added to the permit. These were modeled on similar conditions from the Columbia Gas Loudoun Compressor Station (NRO72265) Title V permit. Once each permit term, NO_x must be measured, and followed up with corrective action if the measured emissions exceed the permit limit of 76 ppmvd@15%O_2. If an exceedance is shown, the corrective action must also be followed up with an EPA Reference Method (40 CFR 60, Appendix A), arranged in advance with the Piedmont Regional Office.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Burning Equipment							
16901	E01	Solar Saturn T-1300 Natural Gas Turbine Engine Modified 1990	14.46 MMBtu/hr 0.0145 $MMft^3$/hr	-	-	-	10/28/15
16902	E02	Solar Saturn T-1300 Natural Gas Turbine Engine Modified 1990	14.46 MMBtu/hr 0.0145 $MMft^3$/hr	-	-	-	10/28/15
16903	E03	Solar Saturn T-1300 Natural Gas Turbine Engine Modified 1990	14.46 MMBtu/hr 0.0145 $MMft^3$/hr	-	-	-	10/28/15
16904	E04	Solar Saturn T-1300 Natural Gas Turbine Engine Modified 1990	14.46 MMBtu/hr 0.0145 $MMft^3$/hr	-	-	-	10/28/15
16905	E05	Solar Saturn T-1300 Natural Gas Turbine Engine Installed 1990	14.46 MMBtu/hr 0.0145 $MMft^3$/hr	-	-	-	10/28/15
169G1	G1	Kohler 30RZ262 Natural Gas Emergency Generator Installed 1990	82 hp	-	-	-	-

EMISSIONS INVENTORY

A copy of the 2015 annual emission update is attached. Emissions are summarized in the following tables.

2014 Actual Emissions –

2014 Facility-Wide Criteria Pollutant Emission in Tons/Year				
VOC	CO	SO_2	$PM/PM_{10}/PM_{2.5}$	NO_x
12.38	21.02	0.05	0.47	16.04

2014 Facility Hazardous Air Pollutants (HAPs) Emissions -

Pollutant	**2014 Hazardous Air Pollutant Emission in Tons/Yr**
Formaldehyde	0.04

EMISSION UNIT APPLICABLE REQUIREMENTS – (#16901-16905 Solar Saturn T-1300 Natural Gas-Fired Turbines)

Limitations

The basis for the turbines' limitations are the operational restrictions listed in the current minor NSR permit dated October 28, 2015 which are based upon state BACT requirements and NSPS Subpart GG emission standards.

[Note: Permit condition numbers listed are specific to the October 28, 2015 minor NSR permit.]

State BACT requirements are as follows:

Condition 1: NO_x, CO, and VOC emissions shall be controlled by equipment design and operation.

Condition 7: SO_2 emissions limited to 0.1 lbs/hr and 0.6 tpy
NO_x emissions limited to 4.5 lbs/hr and 19.8 tpy
CO emissions limited to 6.4 lbs/hr and 28.1 tpy
VOC emissions limited to 2.3 lbs/hr and 10.1 tpy
(Emissions are per engine)

Condition 8: Opacity per engine is limited to 5%.

Operational requirements are as follows:

Condition 3: Allowable fuel is limited to natural gas only.
Condition 6: Annual throughput of natural gas is limited to 127,000,000 ft^3 per year per engine

NSPS Subpart GG emission standards are as follows:

Sulfur Content –
§60.333(b): Sulfur content in fuel shall not exceed 0.8%, by weight (8000ppmw)
(Current minor NSR permit Condition 4 limits sulfur content to not exceed 0.01%, by weight)

Allowable NO_x emissions –
§60.332(a)(2): NO_x emissions shall not exceed

$$STD = .0150\frac{14.4}{Y} + F$$

where:

STD = Allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).
Y = Manufacturer's rated heat rate at manufacturer's rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.
F = NO_x emission allowance for fuel-bound nitrogen as defined in §60.332(a)(3).

Worst-case is F = 0 and Y = 14.4, resulting in

STD = 0.0150%, volume = 150 ppmv

(Current minor NSR permit Condition 7 limits NO_x emissions to 76 pppmvd @ 15% O_2 and ISO ambient conditions.)

Periodic Monitoring and Recordkeeping

The EPA periodic monitoring guidance, dated September 18, 1998, states periodic monitoring is required for each emission point at a source, subject to Title V of the Act, which is subject to an applicable requirement. Current fuel monitoring, recordkeeping, and maintenance requirements contained in the current minor NSR and Title V permits have been examined and determined to meet Part 70 requirements as is. However, there have been additional monitoring and recordkeeping requirements inserted to cover some monitoring gaps for a few of the applicable requirements.

Conditions 11 – 13 were added to the Title V permit in response to EPA comments regarding periodic measurement of NO_x emissions. Since the turbines are subject to NSPS Subpart GG and no control devices are used to control NO_x emissions, the source will be required to measure NO_x emissions from each of the turbines once each permit term (every 5 years). If an exceedance of the permit limit (76 ppmvd@15% O_2 and ISO ambient conditions) is shown, then the permittee is required to take corrective action and follow this up with a reference method from 40 CFR Part 60, Appendix A as arranged with the Piedmont Regional Office.

No periodic monitoring for the opacity limit is necessary since the turbines are burning pipeline-quality natural gas only and equipment maintenance records are sufficient to demonstrate compliance with the limit.

[Note: Permit condition numbers are specific to the October 28, 2015 minor NSR permit.]

Periodic monitoring requirements are as follows:
Sulfur Content Monitoring –
Condition 4: Compliance with the fuel sulfur monitoring requirement shall be demonstrated by maintaining a current, valid purchase contract, tariff sheet, transportation contract or representative sampling data as required by §60.334(h)(3).

Nitrogen Content Monitoring –
§60.334(h)(2) requires monitoring of the nitrogen content for the fuel being combusted. However, this requirement can be waived if the fuel is pipeline quality natural gas since there is no fuel-bound nitrogen and the free nitrogen does not contribute appreciably to NO_x emissions. Based on the letter dated May 27, 1998 from EPA Region III, the nitrogen monitoring requirement has been waived for this source and is being streamlined from the Title V permit. It is now listed under “Inapplicable Requirements”.

Maintenance schedules and operating procedures –
Condition 13: Developing maintenance schedule for the turbines and keeping records for any maintenance conducted.

Requiring manufacturer’s operational specifications for the turbines to be kept on site as well as training for the operators for the specifications to demonstrate compliance with Conditions 1 and 7.

Recordkeeping requirements are as follows:
Condition 9: Keep records of monthly fuel consumption (in million cubic feet) per turbine; monthly operational hours per turbine; tariff sheets, purchase contracts or fuel sampling data as required by Condition 4.

Condition 13: Training records for personnel regarding the proper operation of the turbines.
Also added was a recordkeeping requirement (Title V Condition 8f), which requires the permittee to keep records of all stack tests, visible emissions evaluations, performance evaluations and periodic monitoring measurements.

Testing

Emission testing for the turbines is not required by the current minor NSR permit or NSPS. Testing for NO_x emissions will be required using an EPA reference method (40 CFR 60, Appendix A) if any exceedance of the NO_x permit limit is detected in the NO_x measurement that must be performed on the turbines once each permit term. The Department and EPA have the authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

No reporting requirements for the turbines have been included in the permit. The NSPS does not require specific reporting to be done.

EMISSION UNIT APPLICABLE REQUIREMENTS – (#169G1 - Kohler 30RZ262 Emergency Generator)

This emergency unit is not subject to minor NSR permitting so there are no underlying permit conditions. The unit is subject to MACT Subpart ZZZZ, however enforcement for this MACT subpart has not been delegated to Virginia for area sources but is a federal requirement. Following are applicable requirements from 40 CFR 53, Subpart ZZZZ:

Limitations

- Condition 12 of the Title V permit limits the emergency generator to operate according to the requirements for emergency engines in MACT ZZZZ and to install a non-resettable hour meter. *This requirement will make sure the engine is not operated as a non-emergency unit. The hour meter will track operating hours for applicability to maintenance requirements.*

- Conditions 13, 14, 16 & 17 of the Title V permit list the MACT, Subpart ZZZZ emission limits, monitoring, maintenance, and reporting requirements that are applicable to the generator. *The source is aware of all specific applicable requirements of MACT Subpart ZZZZ and will submit documentation accordingly to show compliance. Copies of the regulations will be attached to the Title V permit.*

Streamlined Requirements

NSPS Subpart GG fuel sulfur limit of 0.8% (by weight) has been streamlined out of the Title V permit. The permit dated October 28, 2015 limits the natural gas sulfur content to less than 0.01% (by weight).

The nitrogen monitoring requirement of NSPS Standards of Performance for Stationary Gas Turbines (40 CFR 60, Subpart GG) is waived in accordance with a letter dated 05/27/98 from EPA Region III. This was included as Condition 6 of the Title V permit dated 09/08/98, but this informational condition has been eliminated and included under "Inapplicable Requirements".

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

28. Permit Expiration

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia,* and the "Department of Environmental Quality Agency Policy Statement No. 2-09".

This general condition cite(s) the Article(s) that follow(s):
Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:
9 VAC 5-80-80. Application
9 VAC 5-80-140. Permit Shield
9 VAC 5-80-150. Action on Permit Applications

37. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

This general condition cites the sections that follow:

9 VAC 5-40-50. Notification, Records and Reporting
9 VAC 5-50-50. Notification, Records and Reporting

41. Permit Modification

This general condition cites the sections that follow:
9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
9 VAC 5-80-190. Changes to Permits.
9 VAC 5-80-260. Enforcement.
9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
9 VAC 5-80-1605. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

55-57. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition 52 and General Condition 53. For further explanation see the comments on general condition 34.

This general condition cites the sections that follow:

9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction
9 VAC 5-80-110. Permit Content

62. Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:
40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.
40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.
40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:
9 VAC 5-60-70. Designated Emissions Standards
9 VAC 5-80-110. Permit Content

STATE ONLY AND FUTURE APPLICABLE REQUIREMENTS

There are no State Only or Future Applicable requirements identified for this facility.

INAPPLICABLE REQUIREMENTS

The nitrogen monitoring requirement of NSPS Standards of Performance for Stationary Gas Turbines (40 CFR 60, Subpart GG) is waived in accordance with a letter dated 05/27/98 from EPA Region III.

New Source Performance Standards (NSPS) Requirements for Volatile Organic Liquid Storage Vessels (40 CFR 60, Subpart K_b) do not apply since the total capacity of the vessels (ref. A04, A05, A06, and A07) at the site are less than 75 m^3.

New Source Performance (NSPS) Requirements for Stationary Compression Ignition Combustion Engines (40 CFR 60, Subpart IIII) do not apply to the emergency generator (ref. 169G1) because it is a spark ignition combustion engine.

New Source Performance (NSPS) Requirements for Stationary Spark Ignition Combustion Engines (40 CFR 60, Subpart JJJJ) do not apply to the emergency generator (ref. 169G1) because it was installed prior to June 12, 2006.

New Source Performance (NSPS) Requirements for Stationary Combustion Turbines (40 CFR 60, Subpart KKKK) does not apply to the gas turbines (ref. 16901-16905) because they were installed prior to February 18, 2005.

National Emissions Standards for Hazardous Air Pollutants for Oil and Natural Gas Production Facilities (40 CFR 63, Subpart HH) does not apply to the facility because the MACT is applicable only to facilities that process, upgrade, or store natural gas prior to the point that it enters the natural gas transmission and storage category.

National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, Institutional Boilers (40 CFR 63, Subpart JJJJJJ) does not apply to the facility. The 0.84 MMBtu/hr boiler is a process heater that burns natural gas only and is therefore exempt from the boiler MACT.

Compliance Assurance Monitoring (CAM) requirements of 40 CFR 64 do not apply because the turbines at the facility do not require any add-on control devices to meet the emission limits.

Currently inapplicable requirements identified by the applicant include the following:

40 CFR Part 98 Mandatory Greenhouse Gas Reporting (facility-wide CO_2e are less than 25,000 metric tons)

40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants that apply to major sources of Hazardous Air Pollutants (including Subparts HHH, EEEE, and YYYY)

STREAMLINED REQUIREMENTS

NSPS Subpart GG fuel sulfur limit of 0.8% (weight) has been streamlined out of the Title V permit. The permit dated October 28, 2015 limits the natural gas sulfur content to 0.01% by weight.

Condition 6 of the Title V permit dated 09/08/98, indicating that the monitoring of fuel nitrogen content is waived for turbines firing only pipeline-quality natural gas, has been deleted. The waiver is included with “Inapplicable Requirements” instead.

COMPLIANCE PLAN

The facility does not currently have a compliance plan.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation[1] (9 VAC_)	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
BLR1	Natural Gas-Fired Boiler	5-80-720 C.2.	TSP,PM-10, PM-2.5, NO_x,SO_2,VOC	0.84 MMBtu/hr
A04	Water Mixture Tank (Wastewater)	5-80-720 B.2.	VOC	275 gallons
A05	Pipeline Liquids Tank	5-80-720 B.2.	VOC, benzene, ethylbenzene, hexane, toluene, xylenes	1000 gallons
A06	Lube Oil Tank	5-80-720 C.4.	VOC	550 gallons
A07	Compressor Oil Tank	5-80-720 B.2.	VOC	300 gallons
HTR 1	Indirect-Fired Water Bath Heater	5-80-720 C.2.	TSP, PM-10, PM-2.5, NO_x, SO_2, CO, VOC	0.087 MMBtu/hr
FUG	Facility	5-80-720 B.2.	VOC	N/A

[1]The citation criteria for insignificant activities are as follows:
9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
9 VAC 5-80-720 B - Insignificant due to emission levels
9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit was placed on public notice in Style Weekly on March 2, 2016. The 30-day state public comment period expired on April 4, 2016. EPA reviewed the permit concurrently and submitted comments on March 28, 2016 (attached).